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Impulsive but Fatal Self-Poisoning with Pesticides Among South Asians in Nickerie, Suriname

An Exploratory Autopsy Study

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Abstract. *Background:* Intentional self-poisoning with pesticides is a serious problem in many developing countries. It is a commonly used method among South Asians all over the world. *Aims:* To describe the circumstances and characteristics of suicides in Nickerie, Suriname, in order to gain insight into why South Asians commonly use self-poisoning. *Methods:* An exploratory psychological autopsy study was conducted among 19 survivors of 13 suicides in the Nickerie district in Suriname. *Results:* Impulsivity plays an important role in self-poisonings, as well as aggression and easy accessibility of pesticides. *Conclusions:* Possible answers to the question why South Asians often use self-poisoning as a method for suicide may be found in culture, upbringing, styles of communication and genetics. However, more research is needed to further explore these hypotheses.

Keywords: suicide, pesticides, South Asians, Suriname

Introduction

Intentional self-poisoning with pesticides is a global problem. It is estimated that there are around 300,000 self-inflicted pesticide deaths each year worldwide (Gunnell and Eddleston, 2003). Most pesticide-related deaths (99%) occur in developing countries, while their use of all pesticides produced is only 25% (Mishara, 2005). The easy accessibility of pesticides, lack of strict regulations, and lower quality and accessibility of medical care contribute to a high fatality ratio in developing countries (10–20%; Eddleston, 2000; Eddleston et al., 2002).

Most intentional self-poisoning with pesticides occurs in rural areas in India (Mishara, 2005), China (Yang et al., 2005), Sri Lanka (e.g., Eddleston et al., 2005), Fiji (Morris and Maniam, 2000), Trinidad and Tobago (Hutchinson et al., 1999), Portugal (Teixeira et al., 2004), and Suriname (Graafsma, Kerkhof, Gibson, Badloe, & van de Beek, 2006). Countries where high rates of suicides have been found among South Asians are Fiji, Malaysia (Morris and Maniam, 2001), Trinidad and Tobago (Hutchinson et al., 1999), and the city-state of Singapore (Lester, 1998).

Although many studies have focused on intentional self-poisoning with pesticides in countries worldwide and several studies have dealt with suicide among South Asians, there are no studies that explain why these two phenomena often occur together. Consequently, the aim of this study was to gain insight into what features of the South Asian culture and what circumstances may contribute to choosing this particular method of suicide.

Method

Catchment Area

Nickerie is a small community with 38,000 inhabitants. Besides the 70% South Asian inhabitants, Nickerie is populated by Creoles (25%), Javanese, and Chinese. In the period 2000–2004, the average suicide rate was 48 per 100,000 in Nickerie. A substantial part of the suicides involved pesticides (55%). The community is dependent upon agriculture. There is no industrialization and little com-

mercial development. Between 60–70% of the population lives in poverty and unemployment is around 20%. Mental health care is almost absent (Graafsma et al., 2006).

The Method of Psychological Autopsy

The method of psychological autopsy has been designed to understand the reasons behind a suicide. To accomplish this, information is gathered from relatives and friends, the coroner, the police, mental health institutions, and hospital records (e.g., Hawton et al., 1998; Snider, Hane, & Berman, 2006).

In the catchment area of this study, no reliable data were available at the community level, which limited the opportunities for epidemiological research into risk factors. The psychological autopsy study was, therefore, the best method, in spite of its methodological problems. Data was gathered by interviewing survivors.

The Interview

The interview used in this study is an abbreviated version of the interview that was used for a psychological autopsy study in Finland (Heikkinen, Isometsa, Aro, Sarna, & Lönnqvist, 1995). The questions were worded in such a way that less educated informants could understand and answer them. The interview contained questions about religion, schooling, profession, personality, relationships, physical health, substance abuse, physical health, and the circumstances of the suicide.

Procedure and Informants

The police in Nickerie provided a list of survivors, who were visited personally. All the survivors who were approached were willing to take part. Informants, mostly relatives, were interviewed in the period April 2005–February 2006 concerning suicides that occurred between January 2005 and December 2005. In total, 19 survivors of 13 suicides were interviewed. All informants signed a consent form. In Nickerie no medical ethical committee is involved in the approval of research projects. We adhered to the ethical standards of comparable autopsy research in The Netherlands.

Analysis

The 13 cases of suicide could be divided into two groups according to the method that was used: pesticide poisonings ($n = 9$) and hangings ($n = 4$). These two groups were then compared on demographical data, schooling and profession, substance abuse, and physical health and characteristics of the suicides.

Because of the small number of subjects, it was not applicable to statistically test differences. The results should, therefore, be interpreted with care.

Results

In both groups, men (pesticides $n = 6$, hanging $n = 3$) outnumbered women (pesticides $n = 3$, hanging $n = 1$) and most subjects were younger than 40. In addition, most subjects in both groups were of South Asian descent and adhered to Hinduism. One subject was of Javanese descent and there were no suicides by Creoles, Chinese, or other ethnic groups in this sample.

The majority had a job at the time of the suicide (69%). Notable is the observation that among the pesticide poisonings, four out of six employed subjects worked in agriculture, while among the hangings one in three employed subjects worked in agriculture. The overall level of education was low.

Five out of nine subjects who ingested pesticides and one out of four subjects who hanged themselves abused alcohol. Regarding physical health, the majority of the pesticide poisonings (89%) had physical problems at the time of the suicide, compared to 50% of the hangings. Most prevalent was stomach ache. In this context, it must be taken into account that mental health care was almost absent in Nickerie until 2003, which may mean that people tend to focus primarily on the somatic components of mental problems.

For both methods, the suicides were thought to be prepared in about half the cases. Previous suicide attempts were reported in three of the nine subjects who ingested pesticides and in two of the hangings. It is striking that none of the pesticide poisonings tried to prevent being found. Often the opposite seemed true: in total, six out of the seven subjects drank the pesticides in front of a family member or went to someone immediately after drinking it (for two subjects this information was not available). Among the cases of hanging, the majority (75%) took measures to avoid being discovered. In addition, it was remarkable that the survivors of eight pesticide poisonings (89%) thought that the suicide could have been prevented, while among the hangings only one survivor thought so.

Discussion

In this study, intentional self-poisoning with pesticides was the most commonly used method for suicide. These pesticides were often available in or around the house and, thus, easily accessible. This is consistent with what may be expected in an agricultural community in a developing country based on the literature discussed in the introduction.

In addition to the easy accessibility to means, impulsivity is a risk factor for suicide. Our results are in line with the findings of Conner et al. (2005) that ingestion of pesti-

cides is significantly more common in less-planned, impulsive suicides, while other methods, such as hanging, are more common in more-planned suicides.

The question is whether the South Asian culture may contribute to choosing self-poisoning with pesticides as a method for suicide. Comparison of attitudes toward suicide among Indian and Dutch students revealed that students from India considered suicide an impulsive act and a result of mental disturbance. They also did not communicate their suicidal ideation out of fear of being rejected (Kerkhof and Nathawat, 1986, 1989). In the present study, a reluctance to communicate about problems and feelings in general was observed. One of the survivors even stated that the suicide might have been prevented if the deceased would have had someone to talk to.

In the South Asian culture, virtuousness and family honor are important. Males and females often have specific roles. Women are often raised protectively and are supposed to fulfill a submissive role. The preservation of their virginity is also of importance. Not adhering to such cultural standards could violate the honor of the family and, as a consequence, a woman may be expelled. Men are often raised with little restrictions and high expectations. They need to maintain the family honor by having a respected job to support their family.

The theory that pesticides are more frequently used in unplanned suicides suggests that South Asians, especially males, may act on impulse more than several other ethnic groups. An explanation for this may be that boys are not very restricted in their upbringing, which may result in not learning to delay gratification and in not learning to tolerate feelings of frustration. This may contribute to impulsive acts, including the act of suicide, a hypothesis that needs further research to be more conclusive. In addition, thoughts and feelings are often not communicated in an atmosphere of mutuality, which ultimately may result in frustration and feelings of not being understood – unless by extreme means.

Finally, there are other explanations that could not be studied here and need to be explored in future research. An example is the possibility of a genetic vulnerability in the South Asian population to impulsivity and aggression when frustrated.

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